

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
LightSquared Subsidiary LLC	)	IB Docket No. 11-109
Technical Working Group Report	)	
	)	
	)	
In re the Application of	)	
	)	
LightSquared Subsidiary LLC	)	File No. SAT-MOD-20101118-00239
Request for Modification of its Authority for	)	
an Ancillary Terrestrial Component	)	

**Comments of Kenwood USA Corporation**

Kenwood USA Corporation (“Kenwood”) hereby submits these Comments to the Federal Communications Commission (“FCC” or “Commission”) in response to the Public Notice released on June 30, 2011 in the above-referenced proceeding<sup>1</sup>. The Commission sought public comment regarding the final report of the LightSquared Subsidiary LLC (“LightSquared”) Technical Working Group (“TWG”), and of the subsequent recommendations<sup>2</sup> of LightSquared.

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<sup>1</sup> *Comment Deadlines Established Regarding the LightSquared Technical Working Group Report*, Public Notice, IB Docket No. 11-109, DA 11-1133 (rel. June 30, 2011) (“Public Notice”).

<sup>2</sup> *Recommendation of LightSquared Subsidiary LLC*, IB Docket No. 11-109 (filed June 30, 2011) (“LightSquared Recommendation”).

## BACKGROUND

LightSquared is a Mobile Satellite Service (“MSS”) licensee operating in the 1525MHz-1559MHz and 1626.5MHz – 1660.5MHz bands. On January 26 2011, the FCC’s International Bureau granted LightSquared a waiver of the Commission’s Ancillary Terrestrial Component Integrated Service Rule.<sup>3</sup> The Integrated Service Rule ensures that any terrestrial service is truly ancillary to the satellite service. However, the waiver in the January 2011 Order permits LightSquared to operate its proposed terrestrial network as a stand-alone service. The size of LightSquared’s proposed network, some 40,000 high-power transmitters, would enable a full terrestrial-only mobile service with no need for satellite components.

The GPS industry, certain government users and other groups raised concerns that LightSquared’s proposed network would cause harmful interference to GPS. Aware of these concerns, the International Bureau included in the January 2011 Order the condition—among others—that LightSquared would convene a cross-industry Technical Working Group that would evaluate interference concerns. This TWG was required to establish to the FCC’s satisfaction that LightSquared’s proposed network transmissions would not cause harmful interference to GPS.<sup>4</sup>

The final version of the TWG Report showed that the LightSquared proposed terrestrial network would cause harmful interference to GPS receivers, although the interpretation of the results was dependent on the definition of harmful interference<sup>5</sup>. Prior to release of the report documenting this information, LightSquared submitted a Recommendation to resolve the issue,

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<sup>3</sup> *LightSquared Subsidiary LLC Request for Modification of its Authority for an Ancillary Terrestrial Component*, Order and Authorization, 26 FCC Rcd 14 (2011) (“January 2011 Order”).

<sup>4</sup> *Id.*, ¶ 42

<sup>5</sup> “*FINAL REPORT*”, LightSquared and the GPS Technical Working Group (6/30/2011) (“TWG Report”).

proposing to delay implementing the terrestrial transmissions in the upper band of its allocation (1626.5MHz – 1660.5MHz) and launch their service with the lower band (1525MHz-1559MHz).<sup>6</sup> The LightSquared Recommendation document also stated that “LightSquared intends ultimately to deploy a network using a full complement of terrestrial frequencies operating at appropriate power levels”.<sup>7</sup>

*About Kenwood:*

Kenwood USA (“Kenwood”) is a leading developer and manufacturer of consumer electronics and communications equipment. Founded in the United States in 1961, Kenwood is the largest sales subsidiary of JVC-Kenwood Holdings of Japan and is recognized by consumers and industry professionals for providing products known for quality, performance, and value.

Kenwood built the first audio/video amplifier for home theater back in 1981. Kenwood created the first consumer radio for the Sirius Satellite Radio service and the first consumer HD Radio. Kenwood continues to be a leader in consumer broadcast and navigation technologies, and is one of the few consumer electronics manufacturers aiding in developing US broadcast standards at the National Radio Systems Committee.

Kenwood maintains a leadership position in North and South America for mobile and portable two-way radios and custom systems for business and government buyers. Kenwood land mobile portables, mobiles and custom systems are acknowledged to be a top choice in the world market, particularly by first responders. In addition, Kenwood's dominance of the amateur radio market has been recognized in the U.S. for more than 30 years. Kenwood amateur radio products are the number one choice for ham operators who are on the forefront of civilian emergency response.

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<sup>6</sup> See LightSquared Recommendation at 4.

<sup>7</sup> Id.

## COMMENTS

### 1. GPS TECHNOLOGY SERVES THE PUBLIC INTEREST

As has been extensively documented elsewhere, GPS technology serves many vital purposes in this country. Many millions of consumers use GPS technology for day-to-day navigation; and first responders use GPS technology to get to the scene of a crisis as quickly and efficiently as possible. Innovative companies like Kenwood are extending the capabilities of navigation systems to include traffic incident and traffic flow data, using these data hand-in-hand with precise GPS positioning capability to save dollars, to save energy, and to save lives. Any new system that has potential to damage this nearly universally used technology must be scrutinized with the highest standards.

### 2. TO PROTECT MILLIONS OF USERS OF GPS TECHNOLOGY, THE APPROPRIATE CRITERIA FOR HARMFUL INTERFERENCE (C/N<sub>0</sub> DEGRADATION) IS 1 DB.

The TWG report carried two perspectives, labeled as “GPS Industry Perspective” or “LightSquared’s Perspective”<sup>8</sup>. A key point of difference in these perspectives is the level of degradation in the ration of desired carrier signal to undesired noise that would constitute “harmful interference”<sup>9</sup>. An industry-standard method of specifying such a ratio is C/N<sub>0</sub>, Carrier to Noise Ratio.

From “The GPS Industry Perspective”, “Degradation of Carrier to Noise Ratio (C/N<sub>0</sub>)” should be defined as,

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<sup>8</sup> See TWG Report, at 17.

<sup>9</sup> See TWG Report, at 129.

*“Any signal or service that causes perceptible degradation in C/N0 or causes any change to existing capabilities or user expectations. For General Location/Navigation, the maximum permissible degradation in C/N0 is 1 dB.”*<sup>10</sup>

From “LightSquared’s Perspective”, “Degradation of Carrier to Noise Ratio (C/N0)” should be defined as,

*“LightSquared’s assessment of the dynamic test results indicate that overall positioning accuracy shows little difference for a change in C/N0 of up to 6dB and believes this is an appropriate benchmark for overload interference determination.”*<sup>11</sup>

There is a significant difference here, from 1 dB to 6 dB. The GPS Industry set 1 dB in order to minimize the chance of failure of navigation systems due to LightSquared’s terrestrial network. LightSquared’s statement indicates that some “little difference” would be allowable.

Our belief is that this is a critical difference. The GPS network is working, every day. A few percent failures translate into tens of thousands of erroneous routings for consumers. For first responders, the “little difference” could have tragic consequences on a daily basis.

As argued above, GPS is a valuable and critical technology in the United States and any potentially interfering service should be scrutinized with the highest standards. The 1 dB definition of degradation of carrier to noise level is realistic, real-world, and appropriate.

Therefore, the TWG Report should be read considering the data taken against the 1 dB parameter. These data strongly support the TWG conclusion which reads, in part, *“The General Location/Navigation sub-team has concluded that all phases of the LightSquared deployment plan will result in widespread harmful interference to GPS signals and service”*.<sup>12</sup>

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<sup>10</sup> Id.

<sup>11</sup> Id. at 130.

<sup>12</sup> See TWG Report, at 122.

### 3. LIGHTSQUARED'S PROPOSED APPLICATION OF DOD STANDARD FOR CONSUMER PRODUCTS IS NOT FEASIBLE

On August 11 2011, LightSquared filed a letter regarding “*Compliance with DoD’s SPS Performance Standard and ITU Recommendations*”<sup>13</sup>. In this letter, LightSquared uses the DoD’s assumptions to support the following statement: “*To comply with these specifications to have a 24 MHz pass band filter, therefore, a GPS receiver would have to filter out transmissions from the adjacent band in which LightSquared operates.*”<sup>14</sup>

This statement implies that the burden is always on the receiver to prevent adjacent signals from interfering. The reality is that there must be a realistic limit on adjacent signals. There is no filter technology known, planned, theorized or speculated which can filter out an arbitrarily large adjacent signal. In other words, any filtering technology can be defeated by simply increasing the adjacent signal strength. The DoD document itself is not in error; there is no indication that the paragraph was intended to create a normative specification for an infinite filter.

A requirement that GPS receivers must filter out an arbitrarily large adjacent signal can not be met. LightSquared’s proposed terrestrial network is a potential source for that arbitrarily large signal. LightSquared’s argument that the burden should be on the receivers to withstand arbitrarily high adjacent signal levels is invalid and should be rejected.

### 4. CONCLUSION

For the reasons above, Kenwood urges the Commission to reject the temporary solution in the LightSquared Recommendation. The Commission is urged to act in the public interest by

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<sup>13</sup> Letter from Jeffrey Carlisle, Executive Vice President, Regulatory Affairs & Public Policy, LightSquared; to Marlene H. Dortch, Secretary, FCC, IB Docket No. 11-109 (11 August 2011) (“Compliance Letter”).

<sup>14</sup> Id. at 2

limiting power levels and frequency usage in the MSS band in such a way as to protect GPS, based on the rigorous studies of the TWG and the appropriate standards set by the GPS Industry representatives; and to do so without imposing LightSquared's proposed infeasible technical requirements on GPS devices.

Respectfully submitted,

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